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| YOUNG & THOMPSON 745 SOUTH 23RD STREET 2ND FLOOR ARLINGTON, VA 22202 | | | HUGHES, SCOTT A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3663 | |

DATE MAILED: 06/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/506,897

Applicant(s)

PLANKE ET AL.

Examiner

Scott A. Hughes

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/15/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/7/2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9/7/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 1 contains the limitation of a pair of deflectors that have “a means between them designed to ensure that the spacing between the hydrophone devices transverse to the vessel’s direction of travel is maintained.” The claim also contains the limitation of “a wire being fastened between the said deflectors in order to limit the spacing between the deflectors.” It is unclear whether these two limitations are referring to the same structural limitation of the wire, or if the “means between them” is a different structural limitation than the wire. Both limitations (wire and means) appear to be performing the same function. The claim is indefinite since it is not clear whether the means limitation and the wire limitation are the same. If the wire is the means, then consistent language for the limitation in the claim is requested in order to make the claim more definite.

Claim 1 contains limitations to hydrophone devices throughout the claim defined early in the claim as “the hydrophone devices consist of short streamers.” Claim 1 also contains the limitation that “each streamer has m hydrophones and where the signals are summed up analogously and form a single-channel hydrophone device; that a total

of n hydrophone devices are mounted on the cable.” It is unclear if this total of “n hydrophone devices” mounted on the cable are limited to being the single channel devices defined above, or if they are the device of the limitation that the hydrophone devices consist of short streamers. Since the applicant uses the term “consists of short streamers” in the claim, then the hydrophone devices can only be short streamers. However, it is unclear whether the “total of n hydrophones devices are mounted on the cable” is limited to n short streamers or n single-channel hydrophone devices.

Claim 1 recites the limitation “each streamer has m hydrophones and where the signals are summed up analogously and form a single-channel hydrophone device.” The limitation “summed up analogously” is indefinite since it is unclear from the specification what is meant by the term analogously. This makes the limitation in the claim indefinite.

Claims 2-14, which depend from claim 1, are therefore also indefinite.

Claim 10 recites the limitation “the signal control and processing equipment.” There is insufficient antecedent basis for this limitation in the claim as there was no previous limitation directed to signal control and processing equipment.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 6-11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over McLoad (3414874) in view of Russell (5835450).

With regard to claim 1, McLoad discloses an apparatus for seismic measurements (abstract). McLoad discloses that a seismic source 36 and receiver devices 38 are towed behind a vessel (Fig. 3) (Column 3, Lines 20-50; Column 5, Line 29 to Column 6, Line 26). McLoad does not disclose that the receiver devices are hydrophones, but does disclose that they are capable of receiving pressure (Column 1, Lines 25-50). Russell teaches that streamers used in seismic surveys include hydrophones (Column 1). It would have been obvious to modify McLoad to include hydrophones as the receiver devices in the streamers as taught by Russell in order to have a receiver that can sense reflected pressure waves and generate an electrical signal indicative of the wave sensed. McLoad discloses that a pair of deflectors 46 are used that are submerged in the sea and have a means 44 between them designed to ensure that the spacing between the hydrophone devices transverse to the vessel's direction of travel is maintained in that, as the vessel moves, the deflectors seek to move in a direction transverse to the vessel's direction of travel, a wire 44 being fastened between the deflectors in order to limit the spacing between the deflectors (Column 5, Lines 55-75). McLoad discloses that the apparatus is characterized in that spaced apart and mounted on the said wire 44 are hydrophone devices 43 which in relation to the spacing of the devices have a short lengthwise extent transverse of the wire in the vessel's direction of travel (Fig. 3). McLoad discloses that the devices are

connected together by a hydrophone signal cable 44 which extends along the said wire (Column 5, Lines 15-70). McLoad discloses that the hydrophone devices consist of short streamers 43 that extend parallel to the vessel's direction of travel and have a lengthwise extent that is 25-400% the spacing between the streamers (Fig. 3) (Column 5, Lines 55-75). McLoad discloses that each streamer has m receivers and where the signals are summed up analogously and form a single-channel hydrophone device (Column 5, Line 30 to Column 6, Line 26). McLoad discloses that a total of n hydrophone devices 43 are mounted on the cable (Fig. 3) (Column 5, Lines 55-70). McLoad discloses that the apparatus comprises an n-channel sampling device for sampling all the hydrophone devices simultaneously (Column 5, Lines 29-55).

The "in order to limit the spacing between the deflectors," "where the signals are summed up analogously," and "for sampling all the hydrophone devices simultaneously" clauses are essentially method limitations or statements of intended or desired use. Thus, these claims as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

With regard to claim 4, McLoad discloses that the lengthwise extent is 80% of the spacing (Fig. 3).

With regard to claim 6, McLoad does not disclose that n is greater than m . McLoad shows more sensors in each streamer than the number of streamers. It is known in the art that the number of sensors in each cable can vary, and that also the number of streamers towed by a ship can vary (see Russell). It would have been obvious to use streamers with very few hydrophones in an array of many streamers, thereby having n greater than m .

With regard to claim 7, McLoad discloses that n (4 streamers) is less than the number of sensors m (Figs. 2, 3) (Column 5).

With regard to claims 8-9 and 13, McLoad and Russell do not disclose the exact number of hydrophones and streamers used. It is known in the art that the number of sensors in each cable can vary, and that also the number of streamers towed by a ship can vary (see Russell). It would have been obvious to use streamers with very few hydrophones in an array of many streamers, thereby having a system with 12 hydrophones per streamer and 24 streamers.

With regard to claim 10, McLoad discloses that the signal cable to which the streamer cables are connected is connected via an outlet to signal control and

processing equipment 39 on the vessel by means of an additional cable 32 (Fig. 2) (Column 5).

With regard to claim 11, McLoad discloses the use of the apparatus of claim 1.

"The use of the apparatus for" is essentially a method limitation or statement of intended or desired use. Thus, this claim as well as other statements of intended use do not serve to patentably distinguish the claimed structure over that of the reference. See In re Pearson, 181 USPQ 641; In re Yanush, 177 USPQ 705; In re Finsterwalder, 168 USPQ 530; In re Casey, 512 USPQ 235; In re Otto, 136 USPQ 458; Ex parte Masham, 2 USPQ 2nd 1647.

See MPEP § 2114 which states:

A claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from the prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ 2nd 1647

Claims directed to apparatus must be distinguished from the prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device is not what a device does. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP § 2115, a recitation in a claim to the material or article worked upon does not serve to limit an apparatus claim.

Claim 11 is not a method as it is not written as a method containing a statement that the claim is a method and also containing specific method steps. The claim is a statement of the intended use of the device of claim 1, and therefore does not serve to further limit the apparatus claim.

Claim 2 is ejected under 35 U.S.C. 103(a) as being unpatentable over McLoad (3414874) in view of Russell (5835450) as applied to claims 1, 4, 6-11, and 13 above and further in view of Barker (US20020064088).

With regard to claim 2, McLoad discloses that the cable extends along the wire (Fig. 3). McLoad discloses that the sources are the beginning section of the towed streamers, but does not disclose that they are between the vessel and the signal cable. Barker teaches a system of towing sources and multiple streamers for seismic surveys similar to the system of McLoad. Barker teaches that sources 30 are towed between the vessel and the cable connecting the different streamers together (Fig. 1) ([0010]-[0015]). It would have been obvious to modify McLoad to include the sources between the vessel and the cable as taught by Barker in order to have sources that can be activated and controlled separately than the streamer devices.

Claims 3 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over McLoad (3414874) in view of Russell (5835450) as applied to claims 1, 4, 6-11, and 13 above and further in view of Dragsund (4831599).

With regard to claim 3, McLoad does not disclose the source is located at one or both of the deflectors. McLoad discloses that the deflectors are suspended from floats 48. Dragsund teaches that seismic sources can be suspended from floats for use in seismic surveys (Fig. 3) (abstract). It would have been obvious to modify McLoad to include sources at the deflectors suspended from the floats as taught by Dragsund in order to control the depth at which the source emit seismic energy.

With regard to claim 14, McLoad and Russell do not disclose the exact number of hydrophones and streamers used. It is known in the art that the number of sensors in each cable can vary, and that also the number of streamers towed by a ship can vary (see Russell). It would have been obvious to use streamers with very few hydrophones in an array of many streamers, thereby having a system with 12 hydrophones per streamer and 24 streamers.

Allowable Subject Matter

Claims 5 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The claims are also rejected under 35 USC 112 and these 112 rejections also need to be overcome for the claims to be in condition for allowance if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SAH



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